Carnivorous Plants in the New Forest

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Introduction

The New Forest is a 37907 ha area of outstanding ecological and natural history interest in central southern England, and a prime area for native carnivorous plants. Its biodiversity and ecology are recognized and protected under a range of British and European measures. Much of this importance is due to the preservation of formerly widespread ancient habitats, some of which can be traced back to prehistoric times, which have been lost elsewhere. Its value as a refuge for flourishing populations of carnivorous plants is part of, but completely dependent on, the overall ecological importance of the area. This summary of the New Forest is largely derived from the works of Colin R. Tubbs (1986, 2001), the most recent and authoritative accounts of the history, ecology and conservation of the New Forest. Anybody seriously interested in the New Forest should refer to these two books. This paper is restricted to a treatment of the carnivorous flora of the New Forest.

The New Forest is not an unbroken woodland. It is a series of eroded flat terraces, highest in the north (120-128 metres altitude), lowest in the south. The middle terraces are scoured into wide hollows drained by two south-flowing stream systems which reach the sea at the Solent (the straights between the Isle of Wight and the mainland). The terrace surfaces are mostly mantled in heathland, and the hollows and valleys between them are a mosaic of woodland, heath, grassland and mire. Superimposed are the mainly regular blocks of woodland (chiefly planted under specific Acts of Parliament) and the more rounded blocks of farmland and settlements.

The New Forest is anything but new to us, but it was new to William I who formed it sometime between the Norman Conquest (1066) and 1086. The history of the New Forest as a legal and administrative entity is long and extremely complex, and arguably this very complexity, and the existence of many parties with rights, obligations or influence has contributed to the survival of its unique character: no one authority has, over a long enough period of time, completely dominated the Forest and its management so as to constrain it to a single purpose. During the 20th century, controversy over the role of commercial forestry came to a head and in 1970 the Minister for Agriculture imposed a temporary ban on felling broadleaved trees, thus establishing the primacy of ecological conservation that is now the basis for environmental planning of the Forest. The New Forest was recently designated as a National Park.

The New Forest is an ecological system which is constantly developing under the influence of large, free-ranging herbivores; both domestic stock and deer. It is the largest area of wild, unsown vegetation in lowland Britain, and includes the largest remaining tracts of intact heathland (12,500 ha), valley mire (2900 ha), and ancient pasture woodland. These three habitats were formerly common, but are now fragmented and rare in lowland Western Europe. As such the New Forest is of global importance. The mire and wet heath habitats are the most interesting to carnivorous plant enthusiasts, but it is essential to emphasise the relationship between all the diverse mosaic of habitats upon which the biological health and diversity of the New Forest depends. The impact of large herbivores over centuries, indeed millennia, is a particularly critical factor.

Finally, we should emphasise the fact that many people live in the New Forest and very many more visit it. There are numerous settlements in the Forest and it is situated in the heart of densely populated central southern England with the urban areas of Bournemouth and Southampton crowding in from the west and east respectively. It is a place of recreation for mil-

Figure 1: *Dionaea muscipula* at Vales Moor. Photograph by Aidan Selwyn.

Figure 2: *Pinguicula lusitanica* at Vales moor. Photograph at lower right by Stephen Locke, others by Aidan Selwyn.

lions of people: about 15 million live within 1 1/2 hrs drive of the Forest. Users of the Forest range from those relatively few who depend on it for their actual livelihood, to casual visitors who stay close to the roads and treat it essentially as a park, to the dedicated walkers and naturalists who penetrate deeper into the forest, among whom we can include carnivorous plant enthusiasts. These hikers come in no small numbers, and carry with them the potential to significantly disturb sensitive wildlife areas.

Carnivorous Plants in the New Forest

As in many parts of the world, the distribution of carnivorous plants in Britain has been severely reduced, for the common reasons of drainage of wetlands, agricultural intensification and urban development. It is instructive to compare historic records of carnivorous plants in the New Forest with their current distribution, and occurrence elsewhere in Hampshire. The major sources for records are the 2 primary Hampshire county floras (Townsend 1904; Brewis *et al.* 1996) and the Hampshire County Museum Service herbarium. It is clear that the current distribution of carnivorous plants in the New Forest is broadly similar to the historic records. This is in strong contrast to the losses elsewhere in Hampshire and indeed Britain as a whole, and doubtless reflects the greater degree of protection afforded the New Forest and above all the lack of agricultural intensification.

Drosera

Drosera rotundifolia and *D. intermedia* are recorded in both floras as very generally distributed and common in the New Forest, as they are today. Likewise, both floras record *D. anglica*, but state it to be rare.

Brewis *et al.* (1996) record *D.* × *obovata* (*D. anglica* × *D. rotundifolia*) as very rare. Townsend (1904) does not record *D.* × *obovata*. Specific localities given for all these species correlate with where they may be found now and herbarium specimens confirm this.

Pinguicula

Pinguicula lusitanica is said by Townsend (1904) to be characteristic of turfy bogs and at that time frequent in the New Forest. Brewis *et al.* (1996) state that *P. lusitanica* is frequent and often plentiful in the New Forest, but very rare elsewhere in Hampshire. Neither flora records *P. vulgaris* from the New Forest. Again, the herbarium confirms this picture. There are however persistent rumours that *P. vulgaris* does occur, either wild or planted.

Utricularia

The distribution of *Utricularia* is confused by the problems of taxonomy and identification. Taylor (1989) was unable to resolve a number of taxonomic issues relevant to the species in the New Forest, so it is clearly beyond the competence of the present authors! Townsend (1904) records *U. vulgaris* L; *U. neglecta* Lehm.; *U. intermedia* Hayne; and *U. minor* L from the New Forest. Brewis *et al.* (1996) record only two *Utricularia* species for the New Forest: *U. intermedia* from a small number of locations, and *U. minor* as locally frequent (especially in the south). They consider records of other species to be misidentifications. The herbarium records conform to this with the proviso about the difficulties of identification. The overall picture that emerges is that only *U. intermedia* and *U. minor* are certainly recorded from the New Forest, and that *U. minor* is the more common and widespread species.

One of the issues not resolved by Taylor (1989) is the status of *U. ochroleuca* R Hartman. The species *U. ochroleuca* and *U. intermedia* are difficult to distinguish (at least as far as historic records are concerned). Neither of the floras or the Hampshire herbarium use the taxon name *U. ochroleuca*, but the presence of this species—under the name "*U. intermedia*"—cannot be ruled out. In summary, the distribution of *Utricularia* seems to have been broadly maintained but

Figure 3: *Drosera anglica* at Vales Moor. Photograph by Aidan Selwyn.

Figure 4: *Drosera* × *obovata* at Vales Moor. Photograph by Aidan Selwyn.

problems of identification make detailed comparisons between species difficult. Certainly two species of *Utricularia* occur, conventionally identified as *U. intermedia* and *U. minor*, and *U. minor* seems to be the more widespread; although its greater propensity to flower makes it more noticeable. It would be useful to obtain some authoritative determinations of material from the New Forest to clarify the current distribution.

Sarracenia and *Dionaea*

Brewis *et al.* (1996) note that *Sarracenia flava* was apparently planted in a valley bog in the New Forest near Burley as early as 1903, and this planting was subsequently observed in 1983, 1987 and 1992. However, they do not record *Dionaea muscipula*, which has also been planted in the New Forest and is still surviving in at least one locality at the time of writing.

Viewing carnivorous plants in the New Forest

The following account of a day spent visiting just three sites in the New Forest demonstrates the relative ease with which its carnivorous plants may be seen in an area of outstanding natural history.

In the last week of July, the authors, accompanied by Nina Locke and Susan Walkinshaw, visited three bogs within the New Forest. Stephen has visited the area over a number of years and acted as our guide. After a month of dry weather there had been almost continuous rain over the 48 hrs preceding our visit. That day, conditions proved to be cool, dry, overcast and breezy. This made photographing small subjects something of a challenge and Aidan, who has contributed most of the illustrations in this article, shot 171 frames in the hope of capturing some acceptable images.

The first location was Vales Moor, and the road passes through the bog itself. Parking the car on the verge, we were confronted by masses of sundews as soon as we stepped into the bog. Both *D. intermedia* and *D. rotundifolia* were growing in profusion. The bog is substantial and we spent some time quartering the area looking for a particular plant that we knew to have been present in previous years. At this point, Aidan had his first face-to-face encounter with the UK's only venomous snake, the adder (*Vipera berus*) which he located by the simple method of very nearly stepping on it! It was brown, which indicates that it was probably female; it quickly moved off into the undergrowth.

We had almost given up searching when Nina spotted a flower scape emerging from the surrounding grasses. She had found what we were all looking for: *Dionaea muscipula* growing wild in the south of England! Two apparently healthy adult plants nestling amidst a patch of *Sphagnum*, busily catching prey. One plant had flowers that were soon to open, the other had an aborted scape (see Figure 1). There was no evidence of the plants dividing or of any seedlings nearby and they were clearly under intense competition from the native vegetation. There are said to be a number of sites in the forest where *D. muscipula* has been introduced, and while Stephen had seen them before this was the first time Aidan had actually seen the plant growing wild. Shortly thereafter, Stephen found the finely veined rosettes and pink flowers of the diminutive *P. lusitanica,* growing in an area of exposed peaty substrate. This is a minute plant that is easily overlooked and difficult to photograph on a windy day (see Figure 2).

Crossing the road and entering the other side of the bog revealed yet more sundews, including the largest species, *D. anglica* (see Figure 3) and the similarly sized hybrid *D.* × *obovata* (see Figure 4). *Drosera anglica* and *D. intermedia* are often mistaken for one another, but seen growing in the same location, the differences between the two plants are obvious. *Drosera anglica* is by far the larger plant in all respects (see Front Cover).

Having seen all of our native *Drosera* species in a single bog, we moved on to the second location, Holmsley Bog, which is a limited area of bog in the bottom of a small river valley. Sundews were evident, but we saw no further carnivorous plants of interest, although Stephen had noted *Utricularia* on previous visits. The bog was however home to an interesting funnel-weaver spider (*Agelena labyrinthica*) spotted by Aidan, living in the centre of a large funnel-web.

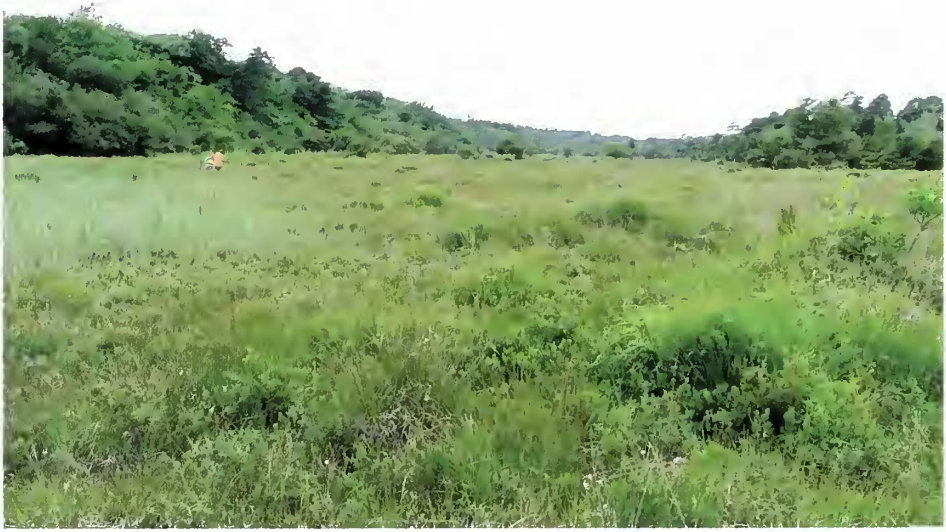

Figure 5: Wootton Bog general view, featuring Aidan Selwyn and Susan Walkinshaw way off in the distance. Photograph by Stephen Locke.

Figure 6: Very large *Drosera rotundifolia* growing submerged at Wootton Bog. Photograph by Aidan Selwyn.

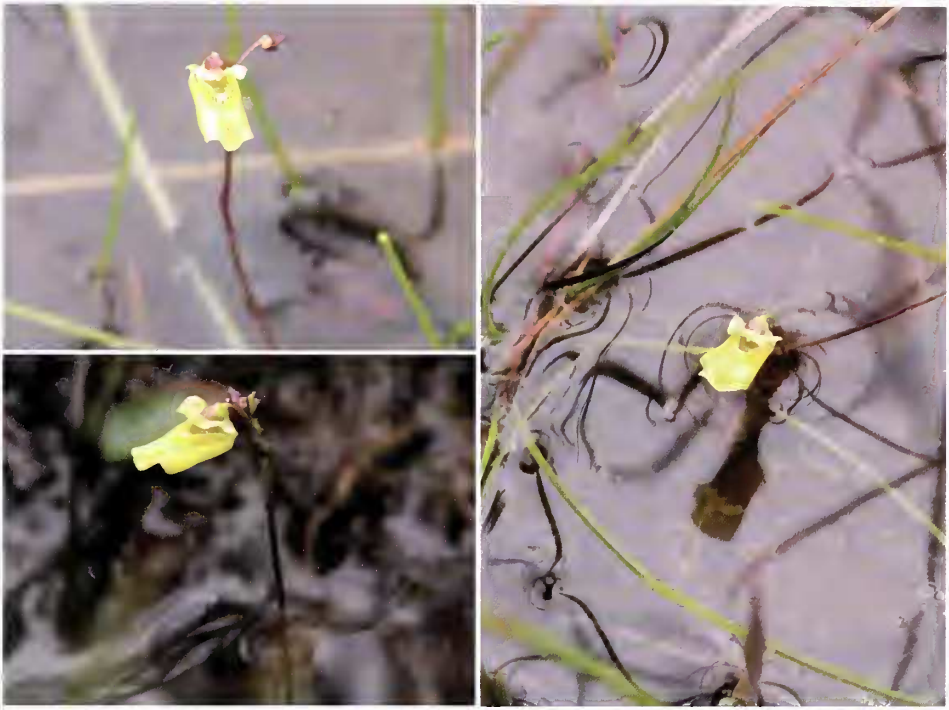

Figure 7: *Utricularia minor* at Wootton Bog. Photograph by Aidan Selwyn.

Figure 8: Stephen Locke photographing plants at Wootton Bog. Photograph by Aidan Selwyn.

Aidan spent some time attempting to photograph the creature and its prey item.

We drove to our final location, Wootton Bog. It proved to be a very wet bog (see Figure 5). The ground was saturated with areas of open water and it was difficult to find firm footing that would support our weight. *Drosera intermedia* and *D. rotundifolia* were again present in large numbers and we found what was perhaps the largest example of *D. rotundifolia* that we had seen (see Figure 6). Growing almost entirely submerged, the leaf rosette was 10-12cm in diameter. Susan made our final find of the day: the tiny and bright yellow flowers of *U. minor* on their scapes rising from pools of water (see Figure 7).

A very enjoyable day in good company, our field-trip in the forest was a notable success and we could not have hoped to see a greater variety of plants. The one carnivorous plant native to the forest that we did not see was *U. intermedia*. Unless in flower, *Utricularia* are not easy to find at the best of times and we were fortunate to locate *U. minor*. Even a relaxed excursion such as ours demonstrated the quality and diversity of carnivorous plant habitats in the New Forest. It has certainly served to maintain our interest in the area and we are resolved to make a rather more intensive search for *Utricularia* next year!

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